GEL'FENBEIN, S. Kh.

Author: Gel'fenbein, S. Kh.

Title: The Gas Turbine in domestic industry. (Gazovye turbiny; bibliografiia. 23 p.

City: Moscow
Publisher:
~~Publication~~: State Printing House of the Machine Construction Literature.

Date: 1946

Available: Library of Congress

Source: Monthly List of Russian Accessions, V. 3, No. 12, March 1951

GEL'FENBEIN, S. KH.

Gazovaia turbina v domennom proizvodstve. Moskva, Mashgiz, 1946. 29, (3) p. illus.

The gas turbine in blast-furnace production.

DLC: TN673.G4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

GEL'FENBEYN, S. KH

Aug 1947

USSR/Engineering
Turbines, Gas
Turbines - Combustion

"Experimental Research and Complex Gas Turbine Plant with Constant Pressure Combustion," C. Kh. Gel'fenbeyn, Candidate in Technical Sciences, Central Scientific Research Boiler Turbine Institute imeni I. I. Polzunov, 1 p

"Izvestiya" No 4

A brief preliminary report on the outcome of experimental research done at the Laboratory of Gas Turbines TSKTI on gas turbine plants (p-constant), carried out in the simplest plan with high-speed

24326

USSR/Engineering (Contd) Aug 1947

axial compressor, gas turbines, and chamber combustion. As a result of the tests, they acquired a series of valuable methods for measuring discharge, and for measuring pressure and temperature during comparatively great speeds in axial clearances of rear axial compressors and gas turbines.

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GEL'FENBEIN, S. KE.

Heat of dilution of sulfuric-nitric acid mixtures as the basis of calculation of their acids. M. S. Gel'fenbein, Sergo Ordzhonikidze Polytech. Inst., Novocherkassk. Zhur. Prikl. Khim. (J. Applied Chem.), 24, 915-19 (1950).—The heat of reaction Q of HNO_3 with H_2SO_4 decreases with increasing dil. If Q of the pure acids is taken = 1, the heat evolved in the interaction of the acids taken in the same proportions, but dild. with H_2O, is a fraction of Q of the pure acids; the decrease of Q with increasing H_2O content of the mixt. is nearly linear. In terms of the proportions of HNO_3 and H_2SO_4 in the undild. mixt., Q passes through a max. (at about 67 wt. % H_2SO_4). The 2 plots permit calcn. of Q for any mixt. at any dils. The accepted representation of the reaction is $HNO_3 + H_2SO_4 = NO_2^+ + HSO_4^- + H_2O$. This scheme accounts for the high elec. cond. of the mixt. of the undild. acids, and (in contrast to the behavior of the single acids) its fall with increasing dils. which shifts the equil. to the left and thus decreases the concn. of ions. This effect accounts also for the decrease of Q with increasing dils. In correct calcn. of heats of nitration, two factors, not usually taken into consideration, should be allowed for. One is the heat of soln. of HNO_3 and H_2SO_4 in the nitration mixt.; this is equal to the heat of mixing, with reversed sign. The other factor is the heat of dils. not of the single H_2SO_4, but of the $H_2SO_4 + HNO_3$ mixt. (with 20–40% excess HNO_3) commonly used in nitration; this heat of dils. of the mixt. of acids can be evaluated from the difference of the heat of formation of the aq. mixt. and the heat of mixing of the undild. acids. As examples, detailed calcns. are given of heats of nitration of glycerol and of PhOH. With 1 kg. of glycerol, and 5000 kg. of acid (HNO_3 50, H_2SO_4 30%), the resulting acid is composed of HNO_3 7.45, H_2SO_4 35.5, H_2O 22.55 kilomoles; the total heat evolved is 251,669 kcal. as against 347,000 kcal. calcd. by the usual procedure, i.e. 38% too high. Similarly, for the nitration of PhOH, the conventional method gives a heat by 21% too high. The discrepancy becomes even more serious (80% for glycerol, 28% for PhOH) if experimentally detd. heats of dils. are taken instead of the data of McDavid (C.A. 16, 1683). The new expts. give (g. mixt., initial compn. in % HNO_3, H_2SO_4, H_2O added, final compn. in % HNO_3, H_2SO_4, H_2O, heat of dils. in cal.): 45.0, 15.2, 85.1, —23.; 14.4, 80.75, 4.85; 485; 47.3, 14.4, 80.75, 4.85, 3.7, 13.4, 75.35, 11.25, 495; 51.05, 13.4, 75.35, 11.25, 2.84, 12.70.; 70.85, 18.45, 228; 50.0, 2.52, 88.68, 8.8, 3.5, 2.3, 82.9, 14.8, 516; 45.0, 9.18, 84.58, 6.24, 2.7, 8.4, 80.1, 11.5, 305.

N. Thon

GIL'FENBEYN, S.Kh., kand.tekhn.nauk

Alternating working conditions of a gas turbine. Sudostroenie no.7:23-29 Jl '60. (MIRA 13:7)
(Marine gas turbines)

S/262/62/000/008/010/022
I007/I207

AUTHOR: Gel'fenbeyn, S. Kh.

TITLE: Method of computing variable operating conditions for marine gas turbines

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovyye ustanovki, no. 8, 1962, 35, abstract 42.8.182. "Tr. Tsentr. n.-i. in-ta morsk. flota", no. 34, 1961, 24-38

TEXT: It is shown that operation of the compressor is approximately proportional to the square of its rotational speed. A formula is derived for computing the relationship between gas consumption and rotational speed of the turbine driving the compressor in the single-shaft and double-shaft gas turbine unit. The formula was obtained analytically utilizing empirical relationships.

[Abstracter's note: Complete translation.]

Card 1/1

GEL'FENBEYN, S.Kh., kand.tekhn.nauk

Rules of the U.S.S.R. Register on marine gas turbine plants.
Sudostroenie 28 no.3:21-23 Mr '62. (MIRA 15:4)
(Marine gas turbines) (Ship registers)

GEL'FENBEYN, S.Kh., kand.tekhn.nauk, dotsent

Calculation of the regenerator of a gas turbine system for operation on principal parameters and partial load conditions. Energomashinostroenie 9 no.11:25-29 N '63. (MIRA 17:2)

L 11230-63 EPA/EWT(m)/BDS--AEDC/AFFTC/ASD--Paa-4
ACCESSION NR: AP3001476 S/0114/63/000/006/0037/0038 57

AUTHOR: Gel'fenbeyn, S. Kh. (Candidate of technical sciences)

TITLE: Testing the gas turbine with a free-piston gas producer

SOURCE: Energomashinostroyeniye, no. 6, 1963, 37-38

TOPIC TAGS: gas turbine, free-piston gas producer, "Pavlin Vinogradov" ship

ABSTRACT: Results are reported of testing in 1961 a six-stage gas turbine and its free-piston gas producer as a main propulsion plant on the "Pavlin Vinogradov" ship. The tests were carried out under mooring, ballast, and cargo conditions. The turbine plant was built by the "Sigma" Company. The techniques and results of measurements are reported in detail. The turbine efficiency (under ballast conditions) in the power range 34-100 per cent, or rpm range 74-100 per cent, varied within 9 per cent. In stand tests the efficiency varied little within 23.5-100 per cent power, or 62-100 per cent rpm. Orig. art. has: 3 figures and 2 formulas.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQD: 01Jul63 ENCL: 00
SUB CODE: 00 NO REF SOV: 002 OTHER: 000
Card 1/1 ch/wm

GEL'FENBEYN, S.Kh., kand.tekhn.nauk, dotsent

Heat exchangers for closed-cycle type gas turbine systems.
Energomashinostroenie 11 no.8:29-33 Ag '65.
(MIRA 18:11)

DUBROVSKIY, A.A., kand. tekhn.nauk; GEL'FENBEYN, S.P., inzh.

Using negative feedback for improving the efficiency of machinery. Mekh. i elek. sots. sel'khoz. 19 no.3:30-32'61. (MIRA 4:6)

1. Vesesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Agricultural machinery)

DUBROVSKIY, A. A., kand. tekhn. nauk; GEL'FENBEYN, S. P., inzh.

Some problems concerning the automation of mobile agricultural machines. Mekh. i elek. sots. sel'khoz. 20 no.6:21-25 '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.

(Automation) (Farm mechanization)

GEL'FENBEYN, S.P., kand. tekhn. nauk; SVIRSHCHEVSKIY, A.V., kand. tekhn. nauk

Conference on the Automation of Agriculture. Mekh. i elek. sots. sel'khoz. 21 no.5:36,58 '63. (MIRA 17:1)

GEL'FENBYN, YA. V.

YA 15/49T72

USSR/Engineering
Pumps, Plunger
Machines, Testing

Aug 48

"Mechanical Pressure Testing of Boilers, Pipes and Armatures," Ya. V. Gel'fenboyn, Engr, ½ p

"Mekh Stroi" No 8

Describes test pump produced by Glavpromenergomontazh Plant in Leningrad. It is horizontal plunger type, driven by an electric motor through worm reduction gearing. Maximum pressure 150 ats.

15/49T72

GEL'FENBEYN, Ya. V.

20657 Gel'fenbeyn. Ya. V. Mekhanizatsiya priteski i Rezki Kirpicha. Mekhanizatsiya stroit-va, 1949, No. 6, s. 22-23

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

GEL'FENBEYN, Ya. V., Eng.

Devices used for installation work on boiler units and plant pipe lines. Rab. energ., 1, No 2, 1951.

Gel'fenbeyn Ya. V.

AID P - 4062

Subject : USSR/Power

Card 1/1 Pub. 26 - 20/33

Authors : Alekseyev, N. V. and Ya. V. Gel'fenbeyn, Engs.

Title : Applying plastering solutions without using a compressor.

Periodical : Elek. sta., 12, 49-50, 1955

Abstract : Various methods of applying plaster without using a compressor but depending upon the size and quality of sand used are explained. Three diagrams.

Institution : None

Submitted : No date

GEL'FENBEYN, Ya.V., inzh.

Inflated temporary structures for the construction of thermal electric plants. Energ. stroi. no.22:24-25 '61. (MIRA 15:7)

1. Proyektnaya tresta "Sevenergoproyekt".
(Buildings, Portable) (Electric power plants)

GEL'FENBEYN, Ya.V., inzh.

New truck-mounted cranes abroad. Stroi. i dor. mash. 8 no.5: 33-35 My '63. (MIRA 16:5)
(Cranes, derricks, etc.)

GEL'FENBEYN, Ya.V., inzh.

Installing tracks for gantry cranes. Prom. stroi. 40 [i.e. 41], no.5:47-48 My '63. (MIRA 16:5)
(Cranes, derricks, etc.)

GEL'FENBEYN, Ya.V., inzh.

Crawler and automobile cranes in foreign countries. Stroi. i dor. mash. 9 no.9:34-38 S '64. (MIRA 17:11)

OSL'YANDIYN, Ya.A. (Riga)

Determination of the dynamic characteristics of a closed-loop nonstationary system in normal operation. Izv. AN SSSR. Tekh. kib. no.4:111-114 Jl-Ag '65. (MIRA 18:11)

GEL'FENBEYN, Ya.V., inzh.

Need for the publishing of a "Manual on the preparation of organization plans for the construction of thermal electric power plants." Energ.stroi. no.25:94-96 '61. (MIRA 15:4)
(Electric power plants--Design and construction)

GEL'FENBEYN, Yakov Vladimirovich; VINITSKIY, D.Ya., inzh., retsenzent; EBERLIN, L.A., inzh., retsenzent; PAVLOV, N.G., red.; ZHITNIKOVA, O.S., tekhn. red.

[Hoisting mechanisms and rigging devices for the construction of thermal electric power plants]Gruzopod"emnye mekhanizmy i takelazhnye prisposobleniia dlia stroitel'stva teplovykh elektrostantsii. Moskva, Gosenergoizdat, 1962. 270 p. (MIRA 15:9)

1. Moskovskiy filial Vsesoyuznogo instituta po proyektirovaniyu organizatsiy energeticheskogo stroitel'stva (for Vinitskiy, Eberlin).

(Hoisting machinery)
(Electric power plants--Design and construction)

BYKOV, V.A.; GEL'FENBEYN, Ye.Yu.; PILIP, M.M.

New design of rope transfer and racking arrangements.
Prokat. proizv. no.2:111-117 '60. (MIRA 14:11)
(Rolling mills--Equipment and supplies)

DUNAYEV, V.I.; GEL'FENBEYN, Ye.Yu.

Removal of the finished product from plate mills. Prokat. proizv. no.2:118-125 '60. (MIRA 14:11)
(Rolling mills--Equipment and supplies)

GRABOVSKIY, L.K., inzh.; BASHILOV, G.N., inzh.; SOKOLOVSKIY, O.P., inzh.; KRASNOSEL'SKIKH, S.N., inzh.; ANTONOV, P.A.; BYKOV, V.A., inzh.; DANILOV, G.G., inzh.; GEL'FENBEYN, Ye.Yu., inzh.; PILIP, M.M., inzh.; MAKAROV, B.V., inzh.; RAGINSKIY, D.M., inzh.

Equipment of a working line of hot rolling mills. Sbor. st. NIITIAZHMASHa Uralmashzavoda no.6:70-96 '65.

(MIRA 18:11)

GEL'FENBOYM, Moisey Shlemovich, KOLCHANSKAYA, N.A., red.;
MAMONTOVA, N.N., tekhn. red.

[Guide for the buyer of photographic supplies and photographic chemicals] Pokupateliu o fotomaterialakh i fotokhimikatakh. Moskva, Gostrogizdat, 1961. 81 p.
(MIRA 15:7)
(Photography--Equipment and supplies)

VARFOLOMEYEV, F.G.; GEL'FENBOYM, M.Sh.; KOTOVICH, Yu.V.; OSTANOVSKIY, T.S.; SEMENETS, V.M.; SHIROKOVA, Ye.A.; EYGINSON, Ye.N.; VVEDENSKIY, S.F., red.; SIMEL'NIKOVA, TS.B., red.; TSESARKIN, L.D., red.

[Study of goods serving cultural needs] Tovarovedenie kul'ttovarov. [By] F.G.Varfolomeev i dr. Moskva, Izd-vo Ekonomika, 1964. 471 p. (MIRA 17:5)

GEL'FENSHTEYN, A.B.

Evaluation of the performance of the modern beer rectification columns with continuous action. Spirt.prom. 29 no.4:36-38 '63. (MIRA 16:5)

1. Karabaltinskiy spirtovoy zavod.
(Distilling apparatus)

GEL'FENSHTEYN, A.B.; YERMOLENKO, R.T.

Karabalty Distillery is an enterprise of communist labor. Ferm. i spirt.prom. 30 no.8:1-3 '64. (MIRA 18:1)

OBL'FER, A.P.

U-shaped pancreatocystojejunostomy in pancreatic cyst caused by injury. Khirurgiia no.10:88 O '55. (MLRA 9:2)

1. Iz khirurgicheskogo otdeleniya 3-y gorodskoy bol'nitsy Kiyeva.
(PANCREAS--TUMORS) (CYSTS)

GEL'FER, A.P., starshiy ordinator (Kiyev)

Phlegmon of the gastrointestinal tract. Vrach.delo no.5:505-509 My '57. (MLRA 10:8)

1. Khirurgicheskoye otdeleniye (nachal'nik - kandidat meditsinskikh nauk D.N.Dumbadze) Bol'nitsy No.2 Yugo-zapadnoy zheleznoy dorogi
(ALIMENTARY CANAL--DISEASES)

L 27581-66 ENT(1)/T RO/JK

ACC NR: AP6018376 SOURCE CODE: UR/0219/65/059/005/0067/0071

AUTHOR: Gel'fer, A. P.

ORG: Surgery Section /headed by Candidate of medical sciences D. N. Dumbadze/, Railroad Hospital No. 2, South-Western Railroad (Khirurgicheskoye otdeleniye Dorozhnoy bol'nitsy No. 2 Yugo-zapadnoy zheleznoy dorogi); Toxicology Laboratory /headed by Doctor of medical sciences Yu. S. Kogan/, Kiev Institute of Labor Hygiene and Occupational Diseases (Toksikologicheskaya laboratoriya Kiyevskogo instituta gigiyeny truda i profzabolevaniy)

TITLE: Experimental data on the effect of a number of organophosphorus compounds on the motility of the rabbit intestine

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 59, no. 5, 1965, 67-71

TOPIC TAGS: organic phosphorus compound, rabbit, digestive system, pharmacology, muscle physiology

ABSTRACT: The effect of organophosphorus compounds on the motility of the rabbit intestine was investigated in situ upon intramuscular or intravenous injection of the compounds. The action of compounds of the following three groups was investigated: 1) those with a cholinesterase inhibitor action both in vitro and in vivo, i.e., pyrophos (I), isosystox (II), and methylacetophos (III); 2) compounds which exhibit a relatively weak cholinesterase inhibitor effect in vitro, but are transformed into substances with a strong

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L 27581-66
ACC NR: AP6018376

antichollnesterase activity in vivo - i.e., octamethyl (IV), chlorophos (V), M-81 (VI), and M-81 Su 3 (VII); 3) K-20-35 (VIII), a substance which does not exert a cholinesterase inhibitor effect either in vitro or in vivo. Acetophos (IX) was also investigated. The action of the compounds on the motility of the intestine, expressed in ratios of increase of the amplitude of contractions of longitudinal muscle fibers to that of contractions of transverse muscle fibers, was as follows: I, 3:1.6; II, 2.5:3; III, 2.5:2.7; IV, 4.8:1.3; V, 5.1:4.8; VI, 4.5:2.5; VII, 4.6:2.2; VIII, 0:0; IX, 2:2.3. The increase in peristalsis was greatest when the induced contraction of longitudinal muscles exceeded that of transverse muscles to the greatest extent. Derivatives of pyrophosphoric acid (I, IV), esters of dithiophosphoric acid (VI, VII), and V (an ester of phosphinic acid) acted predominantly on longitudinal muscles, while esters of thiophosphoric acid (II, III, IX) had a greater effect on transverse vs. longitudinal muscles. III, VI, and VII increased the motility of the intestine in doses in which they produced only a weak anticholinesterase effect. Injection of III or IX after the motility of the intestine had been inhibited by a cholinolytic (atropine or tropacine) induced new contraction waves. This paper was presented by Active Member, AMN SSSR, A. I. Cherkes. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 06 / SUBM DATE: 18Dec63 / ORIG REF: 010 / OTH REF: 002

Card 2/2

ACC NR: AP6029073 SOURCE CODE: UR/0413/66/000/014/0024/0024

INVENTOR: Sanin, P. I.; Shepeleva, Ye. S.; Borodach, M. S.; Myannik, A. O.; Kagan, Yu. S.; Gel'fer, A. P.; Paykin, D. M.; Gamper, N. M.

ORG: none

TITLE: Preparation of esters of phosphoric and thiophosphoric acids. Class 12, No. 183751 [announced by Institute of Petrochemical Synthesis, AN SSSR (Institut neftekhimicheskogo sinteza AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 14, 1966, 24

TOPIC TAGS: insecticide, chloroalkyl phosphate, chloroallyl thiophosphate, ester, phosphoric acid

ABSTRACT: In the proposed method for the preparation of herbicides, the phosphoric and thiophosphoric esters of the general formula:

$$CCl_3(CH_2)_nYP(OR)_2$$
$$\|$$
$$X$$

(where X and Y are O or S; n = 1, 4, 6, 8; and R is an alkyl) are obtained by the reaction of trichloroalkyl alcohols with tetrachloroalkanes [sic]. [WA-50; CBE No. 11]

SUB CODE: 07/ SUBM DATE: 21Jun65/

Card 1/1 UDC: 547.26'118.07

GEL'FER, A.P. [Hel'fer, A.P.]

Effect of some phosphorus organic compounds on the motor activity of the intestine. Fiziol. zhur. [Ukr.] 7 no.2:243-250 Mr-Ap '61. (MIRA 14:4)

1. Toxicological Laboratory of the Kiev Institute of Labor Hygiene and Occupational Diseases and the Surgical Division of Southwest Railway Hospital No.2.

(INTESTINES--MOTILITY) (PHOSPHORUS ORGANIC COMPOUNDS)

GEL'FER, A.P.

Experimental data on the effect of a series of organophosphorus compounds on the motor function of the intestines in rabbits. Biul.eksp.biol. i med. 59 no.5:67-71 '65.

(MIRA 18:11)

1. Khirurgicheskoye otdeleniye (nachal'nik - kand.med.nauk D.N.Dumbadze) Dorozhnoy bol'nitsy No.2 Yugo-zapadnoy zheleznoy dorogi i toksikologicheskaya laboratoriya (zav. - dok'tor med. nauk Yu.S.Kagan) Kiyevskogo instituta gigiyeny truda i professional'nykh zabolevaniy. Submitted December 18, 1963.

SASS, A.Ya., OBLINER, B.Ya., redaktor; YUZHNAYA, Ye.A., redaktor izdatel'stva; SOSNIN, A.P., tekhnicheskiy redaktor

[SMD-2 peat-spreading machine] Stilochnaia mashina SMD-2. Moskva, Gos. izd-vo mestnoi promyshl. RSFSR, 1956. 135 p. (MLRA 10:4)

(Peat machinery)

88428

S/056/60/039/006/015/063
B006/B056

24.6900

AUTHORS: Vovchenko, V. G., Gel'fer, G., Kuznetsov, A. S., Meshcheryakov, M. G., Svyatkovskiy, V.

TITLE: Effect of Nuclear Binding of Nucleons Upon the Shape of Pion Energy Spectra

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1557-1570

TEXT: A description is given of experiments which were carried out with the aim of obtaining quantitative data on the effect produced by nucleon bindings in deuterons and carbon nuclei upon the production of charged pions. Conclusions are drawn with respect to pion production processes on the basis of comparisons of the energy spectra of pions produced in collisions of protons with free protons and with nucleons bound in deuterons and carbon nuclei. The experiments were conducted in a way ensuring strictly equal conditions in taking the spectra and separating the pp- and pn-collisions. The experiments were carried out on the six-meter synchrocyclotron of the Joint Institute of Nuclear

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Effect of Nuclear Binding of Nucleons Upon the Shape of Pion Energy Spectra

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Research. For the pp- and pd-collision experiments, thin-walled cylindrical vessels (4 cm × 12 cm) filled with liquid hydrogen and deuterium, respectively, were used as targets. The densities were 0.0708 and 0.169 g/cm^3, respectively. In the experiments with carbon a 3 mm thick, 5 × 5 cm^2 graphite plate was used as target. In the target center, the proton energy in all cases was (654±5)Mev, the slowing-down losses in hydrogen and deuterium, respectively, were 1.4 and 1.7 Mev, and in carbon they were 1.9 Mev; the slowing-down losses of the 150-Mev pions were 0.7, 0.8, and 0.5 Mev, respectively. The proton flux in a beam of 2 × 3 cm^2 cross section was $2 \cdot 10^8$ $p/cm^2 \cdot sec$. The energy spectra of the charged pions were measured by a magnetic spectrometer with two thin scintillation counters at the input, which was described by L. S. Azhgirey et al. The pion recording threshold was about 35 Mev. The results obtained had, after a number of corrections, which had an error of 7% for the differential cross sections $d^2\sigma/d\omega dE$. The differential elastic pp scattering cross sections at 654 Mev and for 56° in the laboratory system (l.s.) were taken to be $(6.7 \pm 0.35) \cdot 10^{-27}$ cm^2/steradian, so that for 120° in c.m.s. the value $(3.41 \pm 0.13) \cdot 10^{-27}$ cm^2/steradian was obtained. The

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Effect of Nuclear Binding of Nucleons Upon the Shape of Pion Energy Spectra

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difference found to exist in the spectra of mesons from deuterium and carbon is said to be due to the following reasons: a) a higher degree of pair correlation of the nucleons in the carbon nuclei than in deuterons, b) differences in nucleon momentum distribution in these nuclei, and c) effect of secondary pion-nucleon interactions in carbon nuclei. For an angle of $\sim 90^{\circ}$ in the c.m.s. of the two colliding nucleons, the following ratio of differential cross sections was found:

$$\frac{d\sigma}{d\omega}\left[p + p \rightarrow \pi^{+}\right]_{H} : \frac{d\sigma}{d\omega}\left[p + p \rightarrow \pi^{+}\right]_{D} : \frac{d\sigma}{d\omega}\left[p + p \rightarrow \pi^{+}\right]_{C} = 1:0.79:0.40.$$

The π^{-}-meson yields from deuterium and carbon per nucleon of the target nucleus were found to be approximately the same. The π^{+}-π^{-}-meson yield ratios for deuterium and carbon were found to be 10.3 ± 1.3 and 6.0 ± 0.8. The decrease of this ratio on the transition from deuterium to carbon is explained by the considerable fraction of secondary exchange interaction ($\pi^{0} + n \rightarrow \pi^{-} + p$) in the π^{-}-meson yield of carbon. B. S. Neganov, O. V. Savchenko, A. G. Meshkovskiy, Yu. D. Prokoshkin, L. B. Parfenov, and M. S. Kozodayev are mentioned. There are 4 figures,

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Effect of Nuclear Binding of Nucleons Upon the Shape of Pion Energy Spectra

S/056/60/039/006/015/063
B006/B056

3 tables, and 31 references: 14 Soviet, 14 US, 1 CERN, and 2 British.

ASSOCIATION: Ob"yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research)

SUBMITTED: July 9, 1960

Text to Fig. 4 : Comparison between the energy spectra of the charged pions 1) π^+-mesons, emitted in free pp collisions. 2) π^+ from $[pp]_D$; 3) π^+ from $[pp]_C$; 4) π^- from $[pn]_D$; 5) π^- from $[pn]_C$. All spectra are normalized on a uniform area.

Text to Table 1: Differential cross sections for charged pions in pp-, pd- and pC-collisions at 654 Mev. Angle of observation 56° with respect to the proton beam ($\sim 90°$ in the c.m.s.). 1) Differential cross sections, in 10^{-28} cm^2/steradian; 2) Process; 3) Nucleons; 4) l.s.; 5) c.m.s.

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B006/B056

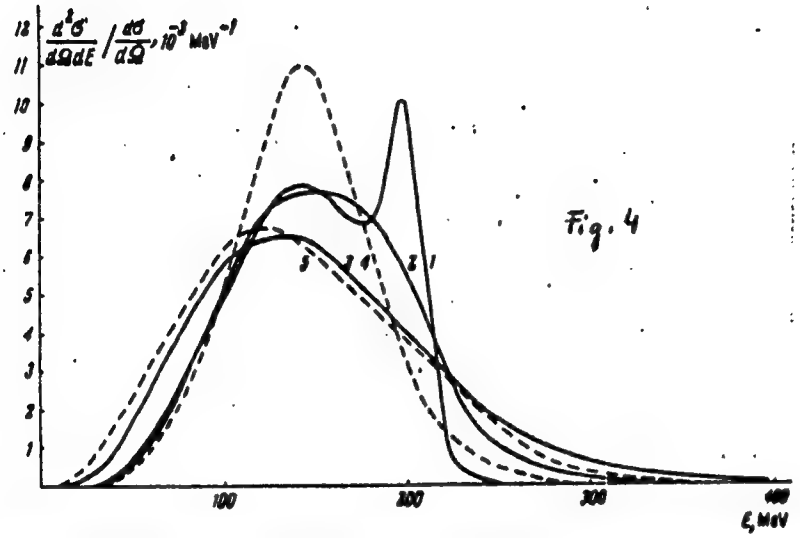

Fig. 4

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B 006/B056

Процесс 2	1 Дифференциальные сечения, 10^{-30} см²/стерад			
	$\frac{d\sigma^+}{d\omega}$, 56° (л.с) 4	$\frac{d\sigma^-}{d\omega}$, 56° (л.с) 4	$\frac{d\sigma^+}{d\omega}$, ~90° (с.ц.м.) 5	$\frac{d\sigma^-}{d\omega}$, ~90° (с.ц.м.) 5
$p+p \to \pi+$нуклоны 3	10,2±1,0	—	6,7±0,7	—
$p+d \to \pi+$нуклоны 3	9,1±0,9	0,88±0,12	5,9±0,6	0,57±0,08
$p+C \to \pi^+ +$нуклоны 3	30,2±3,0	5,0±0,8	19,5±1,9	3,2 ±0,5

Tab. 1

Card 6/6

GEL'FER, G.A.

Essential hypotension; its distribution and clinical course. Ter. arkh., Moskva 24 no.4:53-60 July-Aug 1952. (CIML 23:2)

1. Of the Department of Propedeutics of Internal Diseases (Director -- Prof. K. G. Mikulin), Gor'kiy Medical Institute imeni S. M. Kirov.

GEL'FER, G.A., dotsent

Remote results of treating hypertension with prolonged sleep. Terap. arkh. 26 no.5:29-33 S-O '54. (MLRA 8:2)

1. Iz propedevticheskoy terapevticheskoy kliniki (dir. prof. K.G. Nikulin) Gor'kovskogo meditsinskogo instituta imeni S.M.Kirova

(SLEEP, therapeutic use,
hypertension, results)
(HYPERTENSION, therapy,
sleep, results)

GEL'FER, G.A. (Gor'kiy)

Unconditioned vascular reactions in hypertension and their dynamics in sleep therapy. Klin. med. 32 no.6:60-66 Je '54. (MLRA 7:8)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav.-prof. K.G. Nikulin) Gor'kovskogo meditsinskogo instituta.

(HYPERTENSION, therapy,
*sleep ther., eff. on unconditioned vasc. reactions)
(BLOODVESSELS
*hypertension, unconditioned reflexes, eff. of sleep ther.)
(SLEEP, therapeutic use
*hypertension, eff. on unconditioned reflexes of blood vessels)

PHASE I BOOK EXPLOITATION SOV/4948

Gel'fer, Gesel' Ayzikovich, Aleksandr Vladimirovich Ivanov, and Yakov Grigor'yevich Medvedev

Vzryvozashchishchennoye elektrooborudovaniye: spravochik dlya rabotnikov neftepererabatyvayushchey i gazovoy promyshlennosti (Explosionproof Electrical Equipment: Manual for Oil-Refinery and Gas-Industry Workers) Leningrad, Gostoptekhizdat, 1960. 328 p. Errata slip inserted. 4,100 copies printed.

Ed.: V. Ye. Ul'yashchenko; Tech. Ed.: P. S. Frumkin; Executive Ed.: P. S. Dolmatov.

PURPOSE: This manual is intended for engineers and technicians working in oil refineries and in the gas industry, and may be useful to personnel in other industries where the hazard of gas or dust explosion exists.

COVERAGE: The manual contains the specification and description of explosionproof electric machines, apparatus, and devices manufactured by Soviet industry. Data on classification of locations by the degree of

Card 1/13

explosion hazard, classification of explosive mixtures, selection and use of explosionproof equipment, and arrangement of electric networks in locations containing explosive substances are discussed. It is stated in the foreword that this manual is the first attempt to present in a systematic way data relating to explosionproof electrical equipment and its use. It is based on the Soviet "Rules for the Arrangement of Electrical Installations," 1957-1958 edition, the directives and instructions of the former Ministry of Petroleum and Chemical Industries, USSR, and various scientific research and planning institutes, and information from manufacturing plants. The manual uses the terms vzryvozashchishchennyy (protected against explosion), vzryvobezopasnyy (explosion-safe) and vzryvonepronitsayemyy (impenetrable to explosion) but does not make clear what difference in meaning, if any, exists. All three terms are hereafter translated as "explosionproof." No personalities are mentioned. There are 22 references, all Soviet.

GEL'FER, G.A., dotsent

Diagnostic value of electrophrotetic determination of blood protein fractions in stenocardia. Terap.arkh. 32 no.12:42-47 '60. (MIRA 14:2)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. - prof. K.G. Nikulin) Gor'kovskogo meditsinskogo instituta imeni S.M. Kirova.
(BLOOD PROTEINS) (ANGINA PECTORIS)

BOLDIN, K.M. (Yaroslavl'); DROZDOVA, Z.S.; LEVIN, R.I.; VAYSMAN, L.A. (Kuybyshev-obl.); PODOSINOVSKIY, V.V.(Kazan'); SAYFULLINA, Kh.M. (Kazan'); BUSYGIN, N.V.(Kazan'); RAZUMOVSKIY, Yu.K.(Leninogrosk); GEL'FER, G.A., dotsent (Gor'kiy); MAMISH, M.G.(Kazan'); RAFALOVICH, M.B., dotsent; MEL'NICHUK, S.P., kand.med.nauk; KRAPIVIN, B.V.; STAROVEROV, A.T. (Saratov); SURIN, V.M.; POROSENKOV, V.S.(Romodanovo, Mordovskoy ASSR); ANDROSOV, M.D.(Moskva); ZARIPOV, Z.A.(Urussu, Tatarskoy ASSR); MURAV'YEV, M.F.(Izhevsk); KUZ'MIN, V.I.(Batyrevo, Chuvashskoy ASSR); SITDYKOV, E.N.(Kazan'); YUDIN, Ya.B.(Novokuznetsk)

Short reports. Kaz.med.zhur. no.4:81-91 Jl-Ag '62. (MIRA 15:8)
(MEDICINE--ABSTRACTS)

KSENZ, S.P.; GRUNICHEV, A.S., kand. tekhn. nauk, retsenzent; KRASNOV, I.F., kand. tekhn. nauk, retsenzent; GEL'PER, I.N., red.; KOCHETKOVA, N.A., red.

[Searching for faults in radioelectronic systems using a functional test method] Poisk neispravnostei v radioelektronnykh sistemakh metodom funktsional'nykh prob. Moskva, Sovetskoe radio, 1965. 135 p. (MIRA 18:4)

AUTHOR: Gel'fer, L.M., Engineer SOV/117-58-11-8/36

TITLE: An Accelerated Cross Motion on a Turret Lathe (Uskorennaya poperechnaya podacha na revol'vernom stanke).

PERIODICAL: Mashinostroitel', 1958, Nr 11, p 10 (USSR)

ABSTRACT: In the Khar'kovskiy elektromekhanicheskiy zavod imeni Stalina (Khar'kov Electromechanical Plant imeni Stalin), the turret lathe model 136 has been modernized by the installation of a special device with a separate motor of 0.36 kw and 1,440 rpm. This device accelerates the cross motion of the lathe and cuts the time needed for auxiliary operation. There is 1 diagram.

1. Lathes--Operation 2. Lathes--Equipment

Card 1/1

TAYTS, Ye.M., doktor tekhn. nauk; SHVARTS, S.A., kand. tekhn. nauk[deceased]; PEYSAKHZON, I.B., inzh.; GEL'FER, M.L., inzh.; DMITRIYENKO, M.T., inzh.; DORFMAN, G.A., inzh.; IZRAELIT, Ye.M., inzh.; KULAKOV, N.K., inzh.; KUSHLYANSKIY, B.S., inzh.; MEYKSON, L.V., inzh.[deceased]; LEONOV, A.S., inzh.; SHVARTS, G.A., inzh.; SHVARTSMAN, I.Ya., inzh.; YATSENKO, N.Ya., inzh.; BABIN, P.P., inzh.; KHANIN, I.M., doktor tekhn. nauk, prof., red.; KOZYREV, V.P., inzh., red., KUPERMAN, P.I., inzh., red.; LGALOV, K.I., inzh., red.; LEYTES, V.A., inzh., red.; LERNER, B.Z., inzh.,red.; POTAPOV, A.G., inzh., red.; SHELKOV, A.K., red.

[By-product coke industry worker's handbook in six volumes] Spravochnik koksokhimika v shesti tomakh. Moskva, Metallurgiia. Vol.2. 1965. 288 p. (MIRA 18:8)

MARTYNYUK, Arseniy Grigor'yevich, professor; GEL'FER,P.I., redaktor;
LOKHMATYY,Ye.G., tekhnicheskiy redaktor

[Form and function of the kidney surviving unilateral nephrectomy] Sostoianie i funktsiia ostavsheisia pochki. Kiev, Gos.med. izd-vo USSR, 1955. 87 p. (MLRA 9:3)
(KIDNEYS)

GEL'FER, P.I., professor (Kiyev)

"Outlines of operative urology" by A.P.TSulukidze. Reviewed by P.I.Gel'fer. Urologiia 21 no.2:84-86 Ap-Je '56. (MLRA 9:12)
(GENITOURINARY ORGANS--SURGERY)
(TSULUKIDZE, A.P.)

GEL'FER, P.I., prof.; BLATNOY, Kh.P.

Modification of single-stage prostate adenomectomy with primary suture of the urinary bladder. Urologiia 24 no.4:33-36 Jl-Ag '59.
(MIRA 12:12)

1. Iz Kiyevskoy oblastnoy bol'nitsy (glavnyy vrach A.M. Cherednik).
(PROSTATIC HYPERTROPHY surgery)
(BLADDER surgery)

KUZMENKO, Leonid Nikolayevich, prof.; OKL'YER, P.I., red.; GITSHTEYN, A.D., tekhred.

[Urolithiasis] Mochekamennaia bolezn'. Kiev, Gos.med.izd-vo USSR, 1960. 287 p. (MIRA 13:12)
(CALCULI, URINARY)

VEYMEROV, Isaak Borisovich, prof.; ROZHINSKIY, Lazar' Markovich; GEL'FER, P.I., red.; GITSHTEYN, A.D., tekhn. red.; CHUCHUPAK, V.D., tekhn. red.

[Diseases of the male urogenital organs; the lower section of the urogenital system] Bolezni mochepolovykh organov u muzhchin; nizhnii otdel mochepolovoi sistemy. Kiev, Gos. med. izd-vo USSR, 1961. 220 p. (MIRA 15:3)
(GENITOURINARY ORGANS—DISEASES)

GEL'FER, P.I.

Hematuria in prostatic adenoma. Urologiia 26 no.2:23-27 '61.
(MIRA 14:3)

(PROSTATE GLAND—TUMORS) (HEMATURIA)

GEL'FER, P.I.

"Pyelonephritis" by A.IA. Pytel', S.D. Goligorskii. Reviewed by P.I. Gel'fer. Urologiia no.1:90-92 '62. (MIRA 15:11)
(KIDNEYS—DISEASES) (PYTEL', A.IA.) (GOLIGORSKII, S.D.)

GEL'FER, P.I., prof. (Kiyev)

Current drugs used in urology. Urologiia 27 no.4:66-70 Jl-Ag '62. (MIRA 15:11)
(UROLOGY) (DRUGS)

POLONSKIY, B.L., prof., red.; PROSKURA, O.V., dots., red.; ALAPIN, G.Ya., prof., red.; GEL'FER, P.I. (Kiev), red.; PINEVICH, M.V., dots., doktor med. nauk (Vinnitsa); TSYBUL'SKIY, L.Ye., red.; MARINSKAYA, A.L., tekhn. red.

[Transactions of the Ukrainian Conference of Urologists devoted to the 150th anniversary of N.I.Pirogov's birth, held June 27-29, 1960] Trudy Ukrainskoi respublikanskoi konferentsii urologov, posviashchena 150-letiiu so dnia rozhdeniia N.I. Pirogova, 1960. Kiev, Gosmedizdat USSR, 1962. 386 p. (MIRA 16:3)

1. Ukrainskaya respublikanskaya konferentsiya urologov, posvyashchena 150-letiyu so dnya rozhdeniya N.I.Pirogova, 1960. 2. Glavnyy urolog Ministerstva zdravookhraneniya Ukr.SSR (for Proskura).

(UROLOGY--CONGRESSES)

ALAPIN, G.Ya., prof., red.,(Khar'kov); GEL'FER, F.I., prof., red.; PINEVICH, M.V., dots., red.; POLONSKIY, B.L., prof., red.; PROSKURA, O.V., dots., red.; TSYBUL'SKIY, L.Ye., red.; NARINSKAYA, A.L., tekhn. red.

[Transactions of the Republic Conference of Urologists (dedicated to the 150th anniversary of N.I.Pirogov's birth)] Trudy Respublikanskoi konferentsii urologov (posviashchena 150-letiiu so dnia rozhdeniia N.I.Pirogova) 27-29 iiunia 1960. Gosmedizdat, USSR, 1962. 386 p. (MIRA 16:12)

1. Respublikanskaya konferentsiya urologov Ukrainskoy SSR, 1960.

(UROLOGY)

GEL'FER, P.I., prof.

Review of B.S.Gekhman's book "Nonspecific epididymitis." Vest. derm. i ven. 38 no.9:82-83 S '64. (MIRA 18:4)

GEL'FER, P.I., prof. (Kiyev)

Current aspects of the treatment of urolithiasis; the so-called dissolution of stones. Urol. i nefr. no.2:64-71 '65. (MIPA 19:1)

RUBTSOVA, L. K., GAMBURG, R. L., EYDEL'SHTEYN, S. I., GEL'FER, M. A.

Penicillin inhalation therapy. Pediatriia, Moskva No. 6, Nov.-Dec. 50. p. 44-51

1. Of the Department of Pediatrics, Central Institute for the Advanced Training of Physicians (Head of Department--Prof. G. N. Speranskiy, Active Member of the Academy of Medical Sciences) attached to the Hospital imeni Dzerzhinskiy (Head Physician--Ye. L. Gutorman) and of the Department of Experimental Therapy VNIP (Head of Department--Prof. Z. V. Yermol'yeva, Corresponding Member of the Academy of Medical Sciences).

CLML 20, 3, March 1951

ZHURAKHOVSKIY, P., inzh.; GEL'FER, S., inzh.; GAYETSKIY, A., inzh.

Machine for cutting adhesive rubber. Avt.transp. 40 no.10:31 O '62. (MIRA 15:11)

(Cutting machines)

ZHURAKHOVSKIY, P.; GEL'FER, S.; GAYETSKIY, A.

Machine for inserting vulcanization devices. Avt.transp. 40 no.4:53 Ap '62. (MIRA 15:4)
(Vulcanization--Equipment and supplies)

ZHURAKHOVSKIY, P.N.; GEL'FER, S.; GAYETSKIY, A.

Glue spraying unit. Avt.transp. 4 no.8:52-53 Ag '62. (MIRA 16:4)
(Gluing--Equipment and supplies)

GEL'FER, S.A.

Variation method in conformal mapping. Izv. AN Arm. SSR. Ser. fiz.-mat. nauk 14 no.3:17-24 '61. (MIRA 14:8)

1. Gor'kovskiy inzhenerno-stroitel'nyy institut imeni V.P. Chkalova.

(Conformal mapping)

ZHURAKHOVSKIY, R.; GAYETSKIY, A.; GEL'FER, S.

Tire-retreading line. Avt.transp. 41 no.4:35-36 Ap '63. (MIRA 16:5)

(Tires, Rubber--Retreading and recapping)

GELFER, S.A.

Guelfer, S. On the class of regular functions which do not take on any pair of values w and $-w$. Rec. Math. [Mat. Sbornik] N.S. 19(61), 33–46 (1946). (Russian. English summary)

The author considers the following two classes of functions: the class (C) of functions $w=f(z)=\sum_{n=1}^{\infty}c_nz^n$ which are regular in $|z|<1$ and satisfy the condition that $f(z_1)\cdot f(z_2)\neq 1$ for $|z_1|<1$, $|z_2|<1$, the class (D) of functions $w=\varphi(z)=1+\sum_{n=1}^{\infty}\gamma_nz^n$ which are regular in $|z|<1$ and satisfy $\varphi(z_1)+\varphi(z_2)\neq 0$ for $|z_1|<1$, $|z_2|<1$. If $f(z)$ belongs to (C), then $(1+f(z))/(1-f(z))$ belongs to (D) [illegible] belongs to (D) [illegible] The author finds inequalities for the moduli of the functions and their derivatives [illegible] results to obtain known [illegible]

[illegible]

Mathematical Reviews, Vol No.

Gel'fer, S. A.

USSR 1-P/W

62

Gel'fer, S. A. On typically real functions of order ρ. Mat. Sb. N.S. 35(77), 193–214 (1954). (Russian)

Let $T(\rho)$ denote the class of functions $\sum_{n=1}^{\infty} a_n z^n$ which are regular in $|z|<1$, have all coefficients real, and for which there is a $\rho<1$ such that $\Im f(z)$ changes sign $2p$ times on each circle $|z|=r$, $\rho<r<1$. The reviewer and Robertson [Trans. Amer. Math. Soc. 70, 127–136 (1951); MR 12, 691] proved that if $f(z) \in T(p)$ then for each $n>p$

$$(1) \quad |a_n| \leq \sum_{k=1}^{p} |a_k| \frac{2k(n+p)!}{(n^2-k^2)(p+k)!(p-k)!(n-p-1)!}$$

and this inequality is sharp in all of the variables.

The author now gives a second proof of (1) which is somewhat longer than the original. It is proved that if $f(z) \in T(p)$, then it can be represented in the form

(cont'd)

Gelfand, S.A.

(2) $$f(z)=\sum_{n=1}^{p-1}A^{(n)}\prod_{k=1}^{n}s(z,\cos\theta_k)+\frac{1}{\pi}\prod_{k=1}^{p-1}s(z,\cos\theta_k)\int_0^{\pi}s(z,\cos\theta)d\mu(\theta),$$

where $A^{(1)},\cdots,A^{(p-1)}$ are real, $\mu(\theta)$ is a real non-decreasing function and $s(z,x)=z/(1-2zx+z^2)$. The class of functions given by the right side of (2) is wider than $T(\rho)$, so the bound (1) is now extended to this wider class.

A. W. Goodman (Lexington, Ky.).

Gel'fer, S. A. On coefficients of typically real functions. Doklady Akad. Nauk SSSR (N.S.) 94, 373–376 (1954). (Russian)

62

Let $F(z)=\sum_{n=-1}^{\infty}a_nz^n$ be typically-real in $0<|z|<1$. It is proved that (a) if $a_1-a_{-1}=1$ then $|a_n|\leqq n$, $n\geqq 2$, and (b) if instead $a_{-1}=-1$ and $F(z)\neq 0$ in $|z|<1$ then $-2\leqq a_0\leqq 2$, $-1\leqq a_1\leqq 3$, and

$$4\min_{0\leqq\theta\leqq\pi}\sin n\theta\sin\theta\leqq a_n\leqq 4\max_{0\leqq\theta\leqq\pi}\sin n\theta\sin\theta \quad \text{for} \quad n\geqq 2.$$

All the inequalities are sharp. In the proof of (b) the author uses a Stieltjes integral representation which he attributes to Goluzin, but which was proved earlier by M. S. Robertson [Bull. Amer. Math. Soc. 41, 565–572 (1935)]. The result (a) is partly contained in a more general theorem of Nehari and Schwarz [see the preceding review].

A. W. Goodman (Lexington, Ky.).

GELFER, S.H.

USSR/Mathematics - Multi-leafed functions

Card 1/1 : Pub. 22 - 1/44

Authors : Golfer, S. A.

Title : Variations of multi-leafed functions

Periodical : Dok. AN SSSR 98/6, 885-888, October 21, 1954

Abstract : A method for obtaining the formulas of a variation of multi-leafed functions is described. The method consists in reducing all operations to the determination of the variation of a function which maps a circle on single-leafed region of a plane (Riemannian) with uniforming variable. The theorem presented gives all the necessary definitions. Two references (1943 and 1946).

Institution : Gorkiy Engineering-Constructional Institute im V. P. Chkalov

Presented by: Academician M. A. Lavren'ev, July 19, 1954.

GEL'FER, S.A.

SUBJECT USSR/MATHEMATICS/Theory of functions CARD 1/1 PG - 548
AUTHOR GEL'FER S.A.
TITLE Variation method in the theory of the p-sheeted functions.
PERIODICAL Uspechi mat.Nauk 11, 5, 60-66 (1956)
reviewed 1/1957

Let F_p be the class of functions $z = f(\zeta) = \sum_{n=1}^{\infty} c_n \zeta^n$, $|\zeta|<1$, which map the unit circle onto a region of the p-sheeted Riemannian surface.

Let $F_p^g(a_1,\ldots,a_m)$ be a function family of F_p. The functions belonging to it have the following properties: 1. they map the unit circle onto a region D of a Riemannian surface the genus of which is at most g. Here all functions which map the circle $|\zeta|<1$ onto regions of the same Riemannian surface, transfer the point $\zeta = 0$ into the same point of the Riemannian surface which lies over $z = 0$. 2. In $|\zeta|<1$, $f(\zeta)$ does not assume the values $a_1,\ldots,a_m$.

The principal result of the paper is the following theorem: For given $n \geq 1$ let $|c_n|$ reach a maximum for the function $\tilde{f}(\zeta) \in F_p^g(a_1,\ldots,a_m)$. Then $\tilde{f}(\zeta)$ maps the unit circle $|\zeta|<1$ onto the whole Riemannian surface R which is cut along a finite number of analytic arcs. These intersections go through all points of R_1 which lie over $z = a_1,\ldots,a_m,\infty$.

INSTITUTION: Gorkij.

Call Nr: AF 1108825

Transactions of the Third All-union Mathematical Congress * (Cont.) Moscow Jun-Jul '56, Trudy '56, V. 1., Sect. Rpts., Izdatel'stvo AN SSSR, Moscow, 1956, 237 pp.

Card 24/80

*

Gel'fer, S. A. On the coefficient problem for [illegible]-valent functions. Dokl. Akad. Nauk SSSR (N.S.) 106 (1956), 955–958. (Russian)

Let $F_p(a_1, \ldots, a_m)$ denote the class of functions $f(\zeta) = \sum_{k=1}^{\infty} c_k \zeta^k$ which are regular [illegible] onto a region D lying in some p-sheeted schlichtartig Riemann surface R of genus $\gamma \leq g$ and omit $a_1, \ldots, a_m$ [illegible]. Using variational formulas developed earlier by the author [same Dokl. 98 (1954), 865; see MR 16, 454], he now proves that if $f(\zeta) \in F_p(a_1, \ldots, a_m)$ [illegible] $|c_n|$, then $f(\zeta)$ maps $|\zeta| < 1$ on the entire surface R except for a finite number of analytic arcs. *A. W. Goodman*

Gor'kovskiy Inzhenerno-stroitel'nyy Institut imeni V. P. Chkalova.

GEL'FER, S.A.

20-2-2/62

AUTHOR: Gel'fer, S.A.

TITLE: On the Coefficients of the Typically Real Functions.
(O koeffitsiyentakh tipichno-veshchestvennykh funktsii)

PERIODICAL: Doklady Akad.Nauk SSSR, 1957, Vol. 115, Nr 2, pp. 211-213 (USSR)

ABSTRACT: A function f(z) is called typically real in the circle $|z|<1$, when it is real in the case of a real z and when it satisfies in the other points of this circle the condition $\mathrm{Im}(f(z)).\mathrm{Im}(z) > 0$. T be a class of typically real functions f(z) which are regular in $|z|<1$ and satisfy the normalization conditions f(o)=0, f'(0)= 1. The present report examines the subclass $T^{(2)}$ of the function $f_2(z) \in T$, for which $f_2(z) = (1/i) f_2(iz) \in T$ applies. These functions satisfy the conditions $\mathrm{Im}(f(z)).\mathrm{Im}(z) > 0$ and $\mathrm{Re}(f_2(z)).\mathrm{Re}(z) > 0$ and all of them are odd. The author here puts down $f_2(z) = z+x_1z^3+x_2z^5+\ldots+ + x_nz^{2n+1}+\ldots$. This class $T^{(2)}$ contains all odd one-sheet functions of the type $f_2(z)$ with real coefficients. For the coefficients x_n the following exact estimations are known:

$|x_n| + |x_{n-1}| \leq 2$ $(n=2,3,\ldots)$; $-1 \leq x_1 \leq 1$, $-1/2 \leq x_2 \leq 3/2$. There exist no exact estimations of the individual coefficients x_n for $n>2$. Then the following theorem is given: In the case of $f_2(z) \in T^{(2)}$ the following applies :

Card 1/2

GEL'FER, S.A.

20-2-2/60

AUTHOR: Gel'fer, S. A.

TITLE: On the Maximum of the Conformal Radius of the Fundamental Domain of a Double-Periodical Group (O maksimume konformnogo radiusa fundamental'noy oblasti dvoyakoperiodicheskoy gruppy)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol. 114, Nr 2, pp.241-244 (USSR)

ABSTRACT: Be it assumed that $\{D\}$ is a family of simply connected domains D of the plane w, which contain the point w = 0 and possess the following properties: 1) The domain D contains no points that are congruent with respect to the group T_n of the transformations $w' = w+n_1\omega_1 + n_2\omega_2$. (Here ω_1 and ω_2 denote constants with nonreal relations; n_1 and n_2 denote any whole numbers). The domain D does not contain the assumed system of the finite points $a_1, \ldots, a_m$ and the points congruent with respect to the groups T_n.
From all domains $\{D\}$ that domain has to be determined here which has the highest conform radius. The class of the functions $w = f(z) = \sum_{n=1} c_n z^n$, which are regular in the circle

Card 1/2

On the Maximum of the Conformal Radius of the Fundamental Domain of a Double-Periodical Group

$|z|<1$ and represent this circle one-leafed onto the domains of the family $\{D\}$, are denoted here by $S_\alpha(w_1 w_2)$. This problem is reduced here to the determination of the maximum $|f'(0)| = |\alpha_1|$ within the class $S_\alpha(\omega_1 \omega_2)$. At first a rather voluminous theorem is given and proved. Also the theorems and conclusions resulting from this first theorem are given. There are 1 figure, and 5 Soviet references.

ASSOCIATION: Constructional Engineering Institute imeni V. P. Chkalov, Gor'kiy (Gor'kovskiy inshenerno-stroitel'nyy institut im. V. P. Chkalova)

PRESENTED: November 29, 1956, by V. I. Smirnov, Academician

SUBMITTED: September 23, 1956

AVAILABLE: Library of Congress

Card 2/2

GEL'FER, S. A. Doc Phys-Math Sci -- (diss) "Extreme problems in the theory of multisheeted functions." Len, 1958. 17 pp (Len Order of Lenin State Univ im A. A. Zhdanov), 150 copies. Bibliography at end of text (12 titles).

(KL, 11-58, 111)

AUTHOR: Gel'fer, S.A. (Gor'kiy) 39-44-2-4/10

TITLE: On the Maximum of the Conformal Radius of the Fundamental Domain of a Given Group (O maksimume konformnogo radiusa fundamental'noy oblasti dannoy gruppy)

PERIODICAL: Matematicheskiy Sbornik, 1958, Vol 44, Nr 2, pp 213-223 (USSR)

ABSTRACT: Let $S_a(\omega_1, \omega_2)$ be the class of the functions

$$w = f(z) = \sum_{n=1}^{\infty} c_n z_n \quad ,$$

which are regular in $|z| < 1$ and which map this circle schlicht onto simply connected domains D which possess the following properties: Let T_n be the group of the transformations $w' = w + n_1\omega_1 + n_2\omega_2$, where ω_1 and ω_2 are constant, $\frac{\omega_1}{\omega_2}$ not real, and n_1, n_2 integer; then D contains no points which are congruent with regard to T_n, furthermore D does not contain the points $a_1, \ldots a_m$ and those which are congruent to them with regard to T_n, and finally D contains the zero point.

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Theorem 1: If for $w = f(z) \in S_a(\omega_1, \omega_2)$ the functional $|f'(0)|$ attains a maximum, then w satisfies the differential equation

$$\frac{1}{z^2 w'^2} = A_o + \sum_{i=1}^{m} A_i \zeta(w-a_i) + A_{m+1} \zeta(w) + \wp(w) ,$$

where A_i are constants, $\sum_{i=1}^{m+1} A_i = 0$, and ζ and $\wp$ are the Weierstrasz ζ and $\wp$ -functions. Furthermore f(z) maps the unit circle onto a domain D with the following properties:
1.) D contains $w = 0$, it is the simply connected fundamental domain S_o of the group T_n with sections. The boundary of D consists of a finite number of analytic arcs which are mutually congruent with regard to T_n, and of piecewise analytic sections which connect the boundary with the points a_i (i=1,..,m).
2.) To each pair of congruent curves of the boundary S_o and to the simple curves of the sections there correspond two curves of equal length on $|z| = 1$.

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Theorem 2: The domain D with the properties 1 and 2 of theorem 1 is uniquely determined.
The theorems are needed for the determination of that domain D which possesses the greatest conformal radius, a problem which can be considered as a generalization of the well-known theorem of Koebe and of an investigation of Lavrent'yev [Ref 1] .
Several special cases are considered. There are 2 figures and 4 Soviet references.

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1. Conformal mapping 2. Differential equations

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16(1)
AUTHOR: Gel'fer,S.A.

SOV/20-126-3-1/69

TITLE: On the Maximum Conformal Radius of the Fundamental Region for the Group of Fractional Linear Transformations

PERIODICAL: Doklady Akademii nauk SSSR,1959,Vol 126,Nr 3,pp 463-466 (USSR)

ABSTRACT: Let $\{T\}$ be the proper discontinuous group of the fractional linear transformations T. Let $\{D\}$ be a family of simply connected domains D of the w-plane with the following properties: 1) D contains no points congruent with respect to $\{T\}$; 2) D does not contain the given point system $a_1,\ldots,a_m$, ∞ and the points congruent to this point with respect to $\{T\}$; 3) D contains the point c_0 which is different from the fixed points and the cyclic points of the group transformations. Let $S_a(T)$ be the class of functions $w = f(z) = \sum_{n=0}^{\infty} c_n z^n$ which are regular in $|z|<1$ and which map conformally the circle $|z|<1$ onto the domains $\{D\}$. Theorem: If the functional $|f'(0)|$ gets a maximum by the function $f(z)\in S_a(T)$, then the function maps the circle $|z|<1$ onto a domain D with the following properties: 1. D contains c_0 and is a simply connected fundamental domain S_0 of the group $\{T\}$

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with cuts. The boundary of D consists of finitely many analytic arcs pairwise congruent with respect to $\{T\}$, and of piecewise analytic cuts beginning at the boundary of S_0 and ending in the points $a_1,\ldots,a_m$ or in points congruent with them. 2. To every pair of congruent arcs of the boundary of S_0 and to the simple arcs of the cuts on $|z|=1$ for the mapping $w = f(z)$ there correspond two arcs of the same length. 3. For the given group D is determined uniquely.

There follow several examples for the application of the theorem for the determination of domains with a maximal conformal radius with respect to c_0.

The author mentions G.M.Goluzin, and M.A.Lavrent'yev.
There are 6 Soviet references.

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AUTHOR: Gel'fer, S.A. (Gor'kiy)

TITLE: On the Maximum of the Conformal Radius of the Fundamental Region of the Group of Fractional-Linear Transformations 16

PERIODICAL: Matematicheskiy sbornik, 1960, Vol. 52, No. 1, pp. 629-640

TEXT: Let $\{T\}$ be a properly discontinuous group of fractional-linear transformations and $a_1,\ldots, a_n$ be a system of points in the fundamental region of the group. Let $\{D\}$ be a family of simply connected regions of the w - plane with the properties:
1) D contains no points congruent with respect to $\{T\}$; 2) D does not contain the points $a_1,\ldots,a_m$, ∞ and the points congruent to them with respect to $\{T\}$; 3) D contains a fixed point c_0 different from the fixed points and the cyclic points of the transformations of the group.
Problem : Among all D of the family $\{D\}$, that region shall be determined which has the greatest conformal radius with respect to c_0.

Let $S_a(T)$ be the class of functions

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(1) $$w = f(z) = \sum_{n=0}^{\infty} c_n z^n$$

regular within the circle $|z|<1$ and mapping this circle onto the regions of the family $\{D\}$. The given problem is reduced to the determination of the maximum of $|f'(0)|$ in the class $S_a(T)$.
Theorem 1 : If the functional $|f'(0)|$ has its maximum for $w = f(z) \in S_a(T)$ then f maps the circle $|z|<1$ onto a region D with the following properties:
1) D contains $w = c_o$ and is a simply connected fundamental region S_o of the group $\{T\}$ with cuts. The boundary of D consists of finitely many analytic arcs being pairwise congruent with respect to $\{T\}$, and of piecewise analytic cuts beginning on the boundary of S_o and ending in the points $a_1, \ldots, a_m$ or in congruent points. 2) To every pair of congruent arcs of the boundary of S_o and to the simple arcs of the cuts there

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there correspond two arcs of the same length on $|z| = 1$ in consequence of $w = f(z)$.
Theorem 2 : The region D with the properties 1) and 2) of theorem 1 is unique.
Several exceptional cases are considered : 1) $\{T\}$ consists of the transformations $w' = \frac{aw+b}{cw+d}$, $ad - bc = 1$, a,b,c,d - real, integral; 2) as 1) and besides $b = 2b'$, $c = 2c'$, b', c' - integral ; 3) $\{T\}$ consists of $w' = \frac{aw+\bar{c}}{cw+\bar{a}}$, $a\bar{a} - c\bar{c} = 1$, a and c - complex integers. In all three cases the inverse function $z = \varphi(w)$ of the extremal function is given explicitly ; the given formulas can be obtained from the general results of M.A. Lavrent'yev (Ref. 2). Finally, as a more complicated special case, the author considers groups whose fundamental regions are mappings of Riemannian surfaces (in this case there exists no simple automorphic

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function having only one simple pole in the fundamental region.)
The author mentions G.M. Goluzin and I.Ye. Bazilevich.
There are 7 references : 6 Soviet and 1 English.

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S/044/62/000/007/013/100
C111/C333

AUTHOR: Gel'fer, S. A.

TITLE: Some extremal properties of multi-valent conformal mappings

PERIODICAL: Referativnyy zhurnal, Matematika, no. 7, 1962, 27-28, abstract 7B135. ("Issled. po sovrem. probl. teorii funktsiy kompleksn.peremennogo." M., Fizmatgiz, 1961, 351-358)

TEXT: Let E be the unit circle $|z|<1$; let $K_z(r_0, R_0) \equiv K$ be the circular ring $r_0 < |z| < R_0$, $r_0 < 1 < R_0$; let z_0 be a fixed point of E or K; $p \geq 1$, $g \geq 0$-integers; α-- real number. Let $R_p^{(g)}$ denote a closed Riemann surface with p sheets and genus g. The author gives a qualitative solution of the following extremal problem: The maximum of the functional

$$I_f = \mathrm{Re}\left\{e^{i\alpha} f(z_0)\right\} \qquad (1)$$

is determined, if f(z) varies in the class F_p^g in E or the class

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Some extremal properties of . . .

$F_p\left(\frac{r_o}{R_o}, \frac{1}{P_1}\right) \equiv F_p$ in K. Here F_p^g is the class of regular functions $w = f(z) = z + c_2 z^2 + \ldots + c_n z^n + \ldots$ ($f(z) \neq 0$ for $z \neq 0$ in E, which map E one-to-one on the domain D; the domains D lie on $R_p^{(g)}$ and $z = 0$ is thereby mapped on a fixed point 0 of $R_p^{(g)}$ situated above $w = 0$. Analogously, under the class

$F_p\left(\frac{r_o}{R_o}, \frac{1}{P_1}\right) \equiv F_p$ the author understands the class of regular functions $w = f(z)$, $f(z) \neq 0$ in K, which map K one-to-one on twofold connected domains D on $R_p^{(0)}$, whereby $z = 1$ is mapped on a fixed point P_1 of $R_p^{(0)}$ situated above the point $w = 1$. Both classes are normal in E and K, respectively, this guarantees the existence of extremal mapping functions of the extremal problem being considered in the same class.

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To solve the given problem the author extends the variation method by G. M. Goluzin (Goluzin, G. M., Geometricheskaya teoriya funktsiy kompleksnogo peremennogo [Geometric function theory] M.-L., 1952) to the mentioned function classes by constructing the corresponding variation formulas for these classes. The application of these variation formulas to the extremal problem being examined leads to differential equations in E and K, respectively, for the sought extremal mapping functions, thereby permitting the character of the mappings effected by these functions to be clarified. The following theorems result:

Theorem 1.1: The function $f(z) \in F_p^g$, for which (1) attains a maximum, maps the circle $|z| < 1$ on the whole surface $R_p^{(g)}$ with one cut consisting of a finite number of analytical arcs. These arcs contain all points of $R_p^{(g)}$ which are situated over the points $w = 0$ and $w = \infty$ of the w-plane with the exception of the point 0.

Theorem 2.1: The function $f(z) \in F_p$ for which (1) attains a maximum maps K on a domain D which originates from $R_p^{(0)}$ with the help of two

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cuts consisting of a finite number of analytical arcs. These arcs contain all points of $R_p^{(0)}$ which are situated over the points $w = 0$ and $w = \infty$ of the w-plane.

Further, a differential equation is obtained for the case $z \in E$, $f \in F_p^g$, the integral curves of which are analytical arcs which form the boundary cuts of the extremal domain from theorem 1.1.

[Abstracter's note: Complete translation.]

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AUTHOR: Gel'fer, S.A.

TITLE: Extension of the Goluzin-Schiffer variational method to multiply connected regions

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 142, no. 3, 1962, 503-506

TEXT: Let the n-fold connected domain D be the ring $1<|z|<R$ with $n-2$ circular holes. The class F is assumed to consist of the functions $w = f(z)$, $f(z) \neq 0$ regular and schlicht in D for $z \in D$, $f(z_0) = 1$ for a fixed $z_0 \in (1,R)$ with the property that, if the curve $l_1 \subset D$ is contained in the curve $l_2 \subset D$, fl_1 is contained in fl_2. Let $\Phi[f]$ be a real functional defined for all analytic functions in D which satisfies the relation

$$\Phi[f+\varepsilon g] = \Phi[f] + \mathrm{Re}\{\varepsilon \Psi[f,g]\} + O(\varepsilon^2) \qquad (1)$$

from M. Schiffer (Ref. 1: Proc. Internat. Congr. Math., 1958, Cambridge, 1960), where $\Psi[f,g]$ is a linear complex functional in $g(z)$.

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Extension of the Goluzin-Schiffer ...

The following problem is considered : Determine the functions of class F for which $\Phi[f]$ becomes maximum.
In order to solve the problem the author goes back to a result of V.D. Yerokhin (Ref. 2 : DAN, 120, no. 4, 689 (1953); 127, no. 6, 1155 (1959)) and represents the sought extremum function in the form

$$f(z) = f_n f_{n-1} \dots f_1(z) , \quad z \in D , \qquad (2)$$

where $f_1, f_2, \dots, f_n$ are unique and conformal in the domains $D(L_1)$, $f_1 D(f_1 L_2), \dots, f_{n-1} \dots f_1 D(f_{n-1} \dots f_1 L_n)$; here $D(L)$ is a simply connected domain containing D and having the boundary L ; L_1: $|z| < 1$, L_n: $|z| < R$; $L_2, \dots, L_{n-1}$ the other n - 2 circles of the boundary of D. The component $t_1 = f_1(z)$ is chosen such that the conditions $f_1(\infty) = \infty$, $f_1(z) \neq 0$, $f_1(z_o) = t_1^o$ are satisfied, where t_1^o is determined from $f_n f_{n-1} \dots f_2(t_1^o) = 1$. Then the variation formula of G.M. Goluzin

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